

Figure 1: Acyl derivatization mechanism, shown using amphetamine as an example analyte

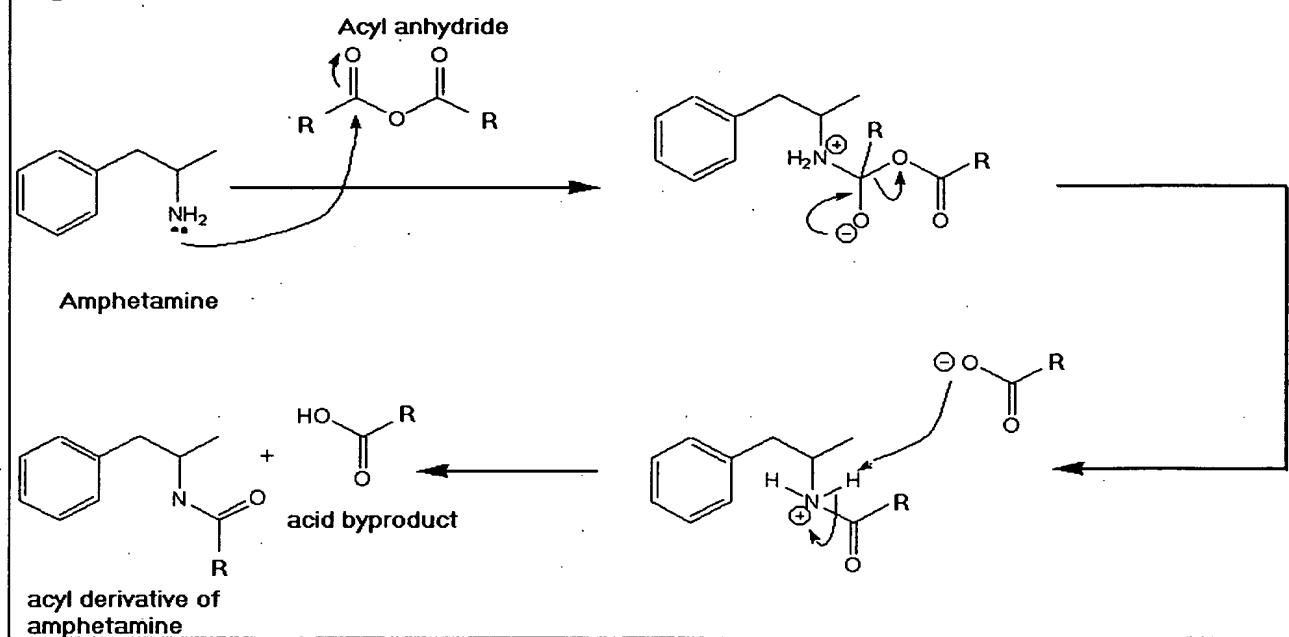
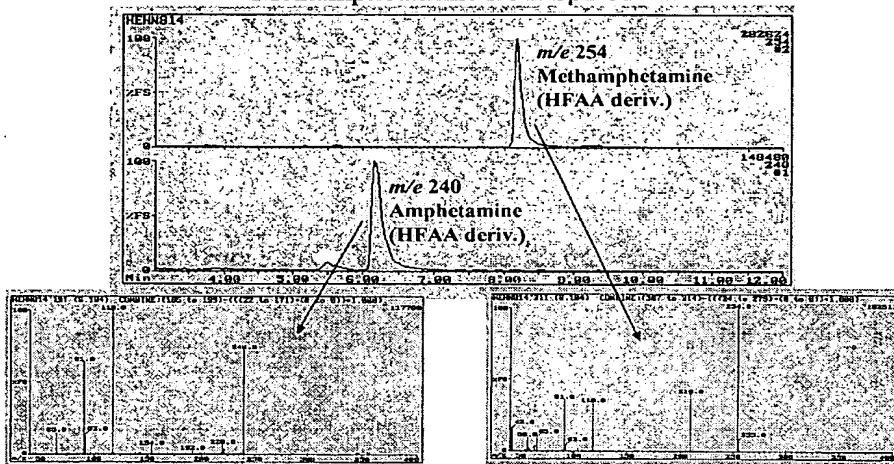


Figure 2: On-Line HFAA Derivatization/SFE of Amphetamine and Methamphetamine from Spiked Hair



Hair sample: 60 mg of negative control hair spiked with amphetamine and methamphetamine (1.8 μ g each).

On-line derivatization/SFE conditions: 30 mL CO_2 + 100 μ L HFAA/100 μ L ethyl acetate; 400 atm, 100°C; 15 min static, 30 min dynamic extraction.

Pre-clean up with pure CO_2 : Hair was pre-extracted with pure CO_2 (400 atm, 50°C) prior to on-line derivatization in order to remove potential chromatographic interferences (i.e., surface waxes and oils).

Collection: SF extract was collected by bubbling SF effluent into ethyl acetate in a conical test tube. Final extract was concentrated under nitrogen to a volume of 50 μ L and a 2 μ L injection was made directly onto the GC-MS.

Figure 3: Esterification of a carboxyl group using pentafluoropropanol in the presence of an anhydride.

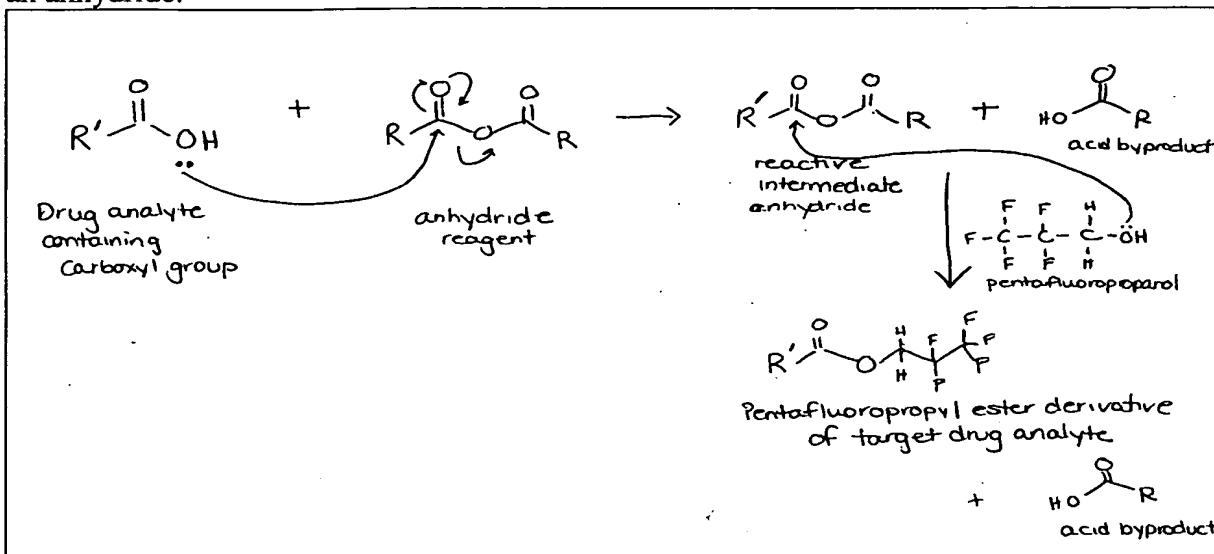


FIGURE 4

Comparison of DRS and NIST Results for a Hair Certified Reference (NIST SRM 2379)
SFE Performed on LSCO 3560; Extract quantification by GC-MS following HFAA Derivatization

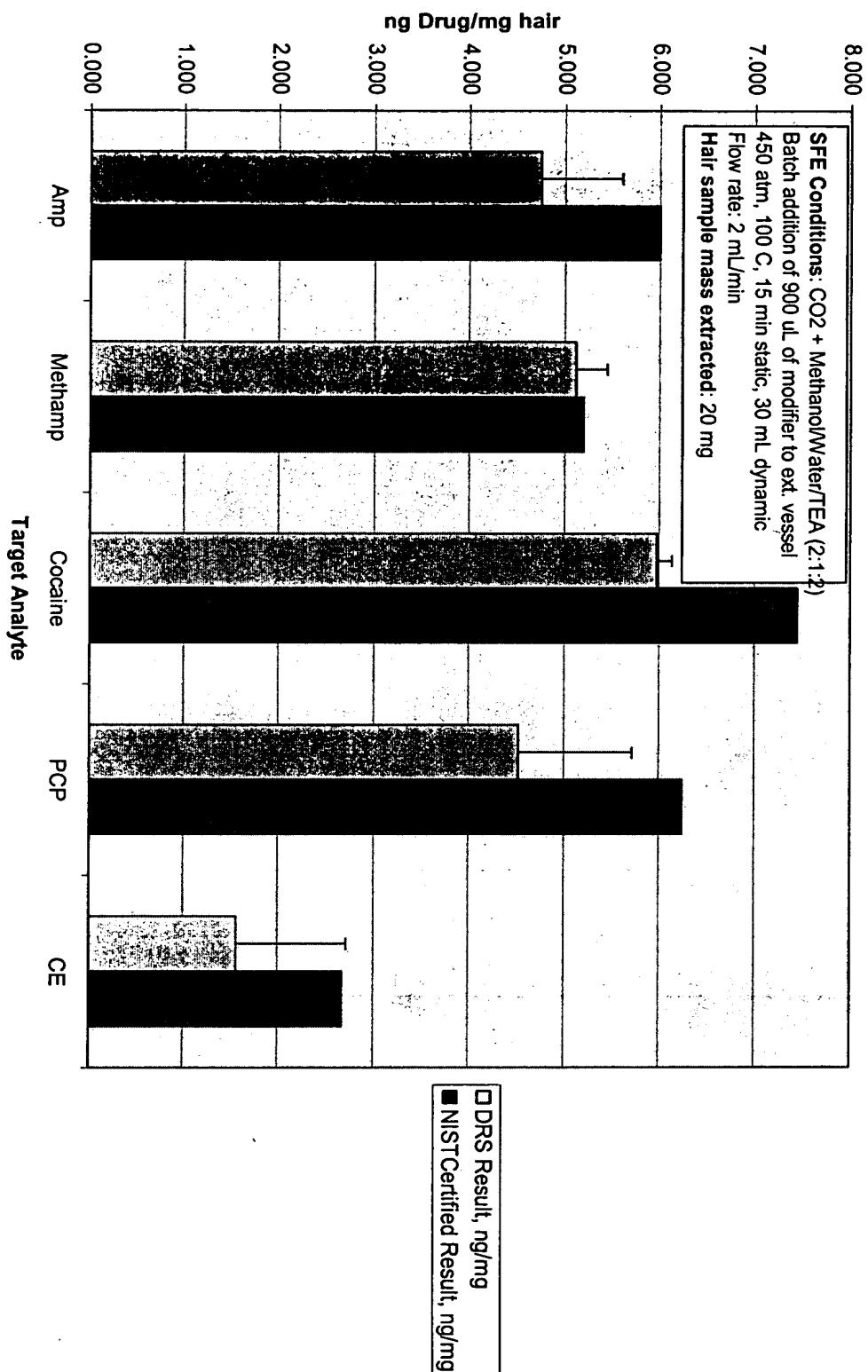


FIGURE 5

Comparison of DRS and NIST Results for a Hair Certified Reference (NIST SRM 2380)
SFE Performed on ISCO 3560; Extract quantification by GC-MS following HFAA Derivatization

